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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/562,395	12/27/2005	Junji Kodemura	4670-0115PUS1	7922
2292 7590 03/30/2009 BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747				
EXAMINER CLARK, GREGORY D				
ART UNIT		PAPER NUMBER		
1794				
NOTIFICATION DATE		DELIVERY MODE		
03/30/2009		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

# Office Action Summary

**Application No.**

10/562,395

**Applicant(s)**

KODEMURA ET AL.

**Examiner**

GREGORY CLARK

**Art Unit**

1794

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 January 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/ICE)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date \_\_\_\_\_

### DETAILED ACTION

Examiner acknowledges the receipt of the Applicant's Amendment, received 01/08/2009. Claims 1-9 original and claim 9 remains non-elected.

Rejections and objections made in the previous office action that do not appear below have been overcome by applicant's amendments and therefore the arguments pertaining to these rejections/objections will not be addressed.

#### ***Claim Rejections - 35 USC § 103***

**Claim 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kanda (JP2001326434A) and Kishi (JP2002338664A)**

**Regarding claim 1**, Kanda teaches a laminated body made from a bulk polymerization of a norbornene monomer (cyclic olefin) using a ruthenium catalyst (JP2001326434A, paragraph 6 of the description). Kanda does not teach the use of inorganic fillers.

Kishi teaches a norbornene polymer and discloses several inorganic fillers including metal oxides and metal hydroxides (*JP2002338664A, paragraph 24 of the description*). Kishi further discloses that the mass (bulk) polymerization of these agents is carried out with a norbornene system monomer for the purpose of improvement in mechanical properties, such as contraction of the norbornene system resin-molding

object acquired, and an elastic modulus, coloring, flameproofing, rigid grant, low-thermal-expansion, increase in quantity, a weight saving, electric conduction grant, or the prevention from electrification (*JP2002338664A, paragraph 22 of the description*).

It would have been obvious to someone of ordinary skill in the art at the time of the invention to incorporate such fillers to achieve the properties listed in paragraph 22 of Kisha listed above.

**Regarding claim 2,** Kanda further teaches the use of several ruthenium carbene complex compounds, such as benzylienerutheniumdichloride and a ruthenium carbene complex compound, such as bis(1,3-dicyclohexyl 4-imidazoline 2-ylidene) benzylienerutheniumdichloride (*JP2001326434A, paragraph 22 of the description*).

**Regarding claim 3,** *Kishi further teaches the use of several inorganic fillers which fall into the class of metal oxides and metal hydroxides some of which include:* titanium oxide, antimony oxide, zinc oxide, magnesium oxide, aluminum oxide, magnesium hydroxide, aluminium hydroxide, calcium hydroxide, magnesium hydroxide and aluminium hydroxide (*JP2002338664A, paragraph 24 of the description*).

**Regarding claim 4,** Kanda further teaches the use cyclic olefin monomers which contain only one double bond such as norbornene, methyl norbornene, Dimethyl norbornene, ethyl norbornene, chlorination norbornene, chloromethyl norbornene, and trimethylsilyl norbornene, (*JP2001326434A, paragraph 7 of the description*).

***Regarding claim 5, Kanda fails to teach the use of chain transfer agents (retardants).*** The applicant gives example in the specification for the types of chain transfer agents (retardant) useful in the invention *which include* vinyl norbornenes. *Kishi teaches the use of chain transfer agents (retardants)*, such as vinyl norbornene, propenyl norbornene, and isopropenyl norbornene to control the polymerization initiation rate (and thus control molecular weight) (*JP2002338664A, paragraph 55 of the description*). It would therefore be obvious to modify Kanda with Kishi to achieved the desired polymerization initiation rate (which controls molecular weight). It would therefore be expected that someone of ordinary skill in the art at the time of the invention would have carried out the polymerization if so desired in the presence of a chain transfer agent (retardant) resulting in the same characteristics with respect to polymerization initiation (which controls molecular weight), absence a showing of unexpected results (Kishi, paragraph 55).

***Regarding claims 6 and 7, Kishi discloses*** a method of carrying out mass polymerization of the norbornene system monomer in a metallic mold by the resin transfer molding (RTM) method or a reaction-injection-molding (RIM) method. A metallic mold is used in order to obtain a molded product of specified shape norbornene (*JP2002338664A, paragraph 63 of the description*). Although Kishi does not mention the specific temperature of the reaction within the metallic mold, the same class of cyclic olefin is used as the applicant.

Therefore, regarding the temperature claimed, such would be readily determined by routine experimentation in an effort to produce the optimum results. In re Boesch and Slaney, 205 USPQ 215 (CCPA 1980).

***Regarding claim 8, Kanda further teaches a laminated body where in the plating layer is formed by electroless plating and in some cases electrolytic plating (JP2001326434A, paragraph 33 of the description).***

### ***Response to Arguments***

The applicant arguments with respect to the resulting molded product exhibiting improved adhesion to the plating layer, a minimization in the deterioration in catalytic activity, a higher producing a molded product with heat-tolerance are not incorporated in the claimed invention. The laminated products of Kanda and Kishi met the criteria of the claimed invention.

The examiner takes the position that although the invention of Kanda is directed to a method for producing insulating substrates for printed circuit boards by subjecting a stock solution containing a norbornene monomer and a metathesis polymerization catalyst (such as a ruthenium catalyst) to bulk polymerization a person of ordinary skill in the art at the time of the invention could combine the teachings of Kanda with that of Kanda which clearly discloses the norbornene monomer metathesis polymerization can

be carried out in the presence of inorganic fillers which meets the criteria of the claimed invention.

Kishi clearly indicates that the fillers used in the invention improve mechanical properties. The applicant mentions the absence of an appreciation for the adhesion promotion advantages of using an inorganic filler in the reference but has not incorporated such advantages in the claimed invention. At the time of the invention a person of ordinary skill in the art would have gain sufficient insight on norbornene monomer metathesis polymerizations with a ruthenium catalyst in the presence of inorganic fillers to carry out a process the meets the criteria of the claimed invention.

The applicants' argument as to the inorganic filler is added in order to improve the adhesion between a molded product and a plating layer and this advantage is not recognized by Kishi since Kishi is not concerned with the adhesion of a plating layer to a molded product is moot considering that the specific claimed invention makes no mentioning of adhesion advantages.

Kishi uses metal oxide fillers in the presence of the polymerization of norbornene monomers which improve the contraction properties of the resulting norbornene resin with respect to molding the resin to an object. The examiner takes the position that the ability to improve the contraction properties would likely act to improve the adhesion properties of the resin by preventing the resin from withdrawing from the surface doing the cooling cycle.

A person of ordinary skill in the art at the time of the invention would have had sufficient knowledge based on the teachings of Kanda and Kishi to carry out the norbornene monomer polymerization in the presence of inorganic fillers using a ruthenium catalyst to produce a laminated body that meets the criteria of the applicant's claimed invention.

The usage of such resins would not have been limited to printed circuit boards and the improvement gained by the addition of the inorganic fillers taught by Kishi such as contraction properties of the resulting norbornene resin in molding to an object and the improvements in the elastic modulus would allow a person skilled in the art to select the appropriate filler to optimize the final resin properties for the intended application.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of



the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GREGORY CLARK whose telephone number is (571)270-7087. The examiner can normally be reached on M-Th 7:00 AM to 5 PM Alternating Fri 7:30 AM to 4 PM and Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Larry Tarazano can be reached on (571) 272-1515. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. Lawrence Tarazano/  
Supervisory Patent Examiner, Art Unit 1794

GDC